Data Access and Dissemination System (DADS)

1.0 DADS Overview

The Data Access and Dissemination System (DADS) is comprised of two primary subsystems: American FactFinder and Data Products Production. These subsystems jointly comprise a suite of applications designed to provide responsive, multi-tiered, near-universal access to the U.S. Census Bureau's vast storehouse of data (through a state-of-the-art, Internet-based, user-interactive interface) implemented via current World Wide Web technology.

We describe the IT resources for DADS as the component sub-systems and the office automation infrastructure providing program support. The IT goal of DADS is to be "the new way for the U.S. Census Bureau to expand the accessibility and delivery of its information to users, internal and external, for all skill levels, novice and expert alike."

In pursuit of that IT goal, the DADS program intends to realize the greatest gains and successes in the following areas:

- **Consistent data access and dissemination: DADS will identify and, as appropriate, use all relevant U.S. Census Bureau work underway or planned so that a coordinated corporate approach to data access and dissemination is universally used;**

(continued)

- **Increased responsiveness: By providing dynamic access to census data, DADS will allow the U.S. Census Bureau to more rapidly respond to requests for products and information;**
- **Reduced costs: DADS will adopt the most efficient and innovative processes to reduce the time and effort required to make products and information available. DADS will use commercial off-the-shelf software for Data Products Production;**
- **Electronic commerce: By allowing products to be ordered and paid for over the Internet, DADS will allow the U.S. Census Bureau to become more self-sufficient, expand its customer base, and maximize reimbursable income;**
- **Planned changes: The U.S. Census Bureau will enlist the assistance of internal and external users to test the viability of each DADS iteration and will accept, reject, and/or refine independently each iteration. By doing so, DADS will allow the U.S. Census Bureau to adjust to the rapidly changing spectrum of requirements and take advantage of the varied and evolving technology environments;**
- **Customer relations/User satisfaction: The U.S. Census Bureau will continue to include customers in the design and testing of DADS. By listening to our customers, we ensure that evolving user requirements are met or exceeded; and**
- **Adaptability: DADS will respond quickly to changing customer requirements and meet them as they are identified.**

The following table summarizes information on American FactFinder data products.

American FactFinder Data Products		
Class	**Capability**	**Description**
Tier 1: static products	**search, browse, retrieve, view, print, and download in a what-you-see-is-what-you-get environment**	• **press releases (static);** • **statistical abstracts (static);** • **census briefs; and** • **information bulletins**
Tier 2: summary data products	**select, extract, and manipulate by geography from summary data files**	• **1990 Decennial Census Summary Files;** • **American Community Survey Summary Tables;** • **1998 Dress Rehearsal for Census 2000 Summary Files; and** • **1997 Economic Survey Summary Files**
Tier 3: microdata products	**create custom tables from microdata files within strict confidentiality standards**	• **1990 Decennial Census;** • **2000 Decennial Census;** • **American Community Survey**

As previously mentioned, the Data Products Production subsystem will provide an interactive interface for appropriate U.S. Census Bureau staffs to design, review and generate pre-defined summary data products using the Hundred Percent Edited Detail File and the Sample Edited Detail File microdata datasets. In addition, this subsystem will, based on these data products, generate a number of file output formats for printing, for stamping to CD-ROM, and for online Intranet/ Internet access through the American FactFinder.

You can find a mid-term, futuristic vision that represents the potential end result for DADS by considering the *Statistical Abstract of the United States*, published each year by the U.S. Census Bureau. The Data Products Production subsystem will reach its functional maturity when the U.S. Census Bureau can produce the *Abstract* by pressing a few buttons; the American FactFinder will reach its functional maturity when internal or external customers can access, tabulate, or download anything from the *Abstract* via the Internet. When both concepts are mature and available, DADS will have realized its full potential.

The table on the following page summarizes information on this subsystem's data products.

DADS customers (or data users) are from the public and private sectors; they are internal and external to the U.S. Census Bureau and they use census data to govern and make economic policy and business decisions. DADS was and is being built to satisfy a wide range of users from novice to expert, who will use the system in different ways for various purposes. Figure 1, on the following page, depicts DADS' internal and external customers.

The U.S. Census Bureau's internal data customers include staff that design and create summarized data, one-time special tabulations and extracts from a given micro-data set to place it within the pre-defined product side of DADS. These staff members play a critical role in achieving easier access to the U.S. Census Bureau's data and data products and comprise an important segment of the customer market for census data. U.S. Census Bureau subject matter analysts also prepare specifications in response to inquiries from Congress, other federal agencies, state and local governments, and other groups. Improved access to data for these customers results in increased efficiency in designing and creating standard products and quicker response to requests for special tabulations. This group comes from all major areas of the U.S. Census Bureau.

Additionally, the U.S. Census Bureau supports internal and external data disseminators who assist and provide information to data users. Internally, this group includes Regional Office staff and other individual divisions and program areas that respond to inquiries for data and data products. Externally, the group includes the State Data Center Network and other distribution networks such as the Federal Depository Library System. They essentially use DADS as a look-up system, using mostly summarized data, and providing help and direction to data users.

Because DADS is a data delivery system, it is not within the scope of the project to determine content of any particular product or data set. The clients noted in the previous table (page 4) and the customers listed in Figure 1 (page 6) will be the driving forces behind determining product content and output format requirements. Resident staff participating in the DADS development process collect specific information about product file size, format, and other technical requirements.

1.2 DADS IT Objectives

The DADS program intends to make maximum and efficient use of its IT resources to meet programmatic objectives by:

- **reducing software development costs through the rigorous and efficient application of management and contract techniques;**
- **ensuring that DADS is hardware and operating system independent;**
- **ensuring that DADS is Y2K compliant;**
- **ensuring that there is a continuous and comprehensive transfer of technology to the government throughout the development process;**
- **providing a utilitarian system of enhanced data access, dissemination, and tabulation tools to U.S. Census Bureau analysts;**
- **ensuring that the critical components of DADS are fault-tolerant with adequate hardware and telecommunication redundancy;**
- **fostering innovation and judiciously applying technology to ensure that it responds to customer and programmatic requirements and is cost beneficial; and**
- **ensuring that existing and planned technology meshes with existing and future staff competencies.**

We will achieve DADS' IT objectives by:

- **maintaining a stable, secure, and responsive DADS presence on both the Internet and the U.S. Census Bureau Intranet;**
- **thoroughly scrubbing the most costly and resource-intensive processes to ensure maximum return on investment;**
- **ensuring that the products of our incremental development processes are reuseable and serve as the base components of follow-on efforts (i.e., no disposable products);**
- **listening and responding to our customers;**
- **using commercial off-the-shelf software wherever possible; and**
- **retaining and strengthening core staff competencies and contracting out for specialized skills.**

The Intranet environment supports internal U.S. Census Bureau users as well as the DADS development systems. Intranet systems are protected from external access by the U.S. Census Bureau's Internet firewall (see Figure 3, below). The Internet environment, which physically resides outside the U.S. Census Bureau Internet firewall, supports users external to the U.S. Census Bureau and does not permit unauthorized external access to internal systems.

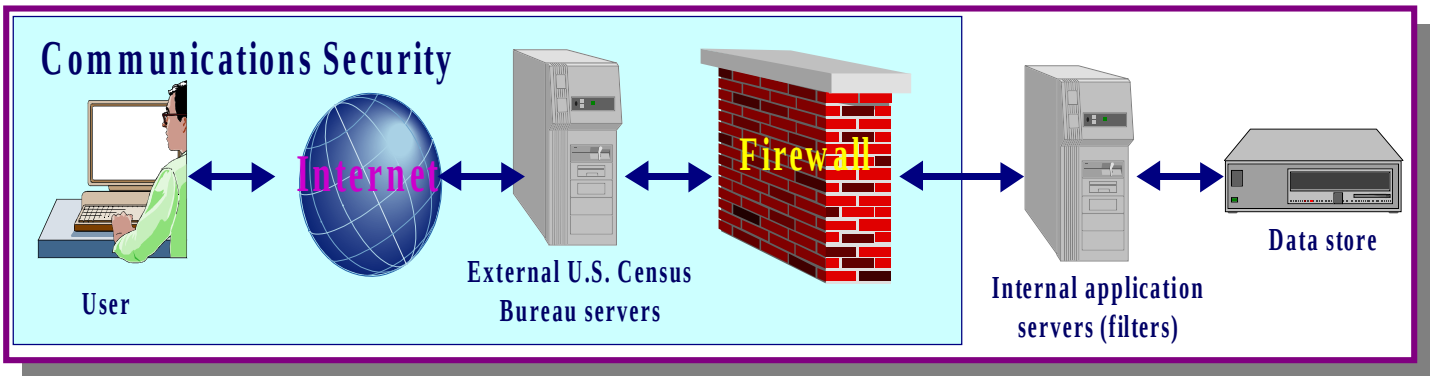

Figure 3: DADS Communications Security

The Decennial Directorate provides system management and network support for the Data Products Production subsystem Windows NT servers. Necessary support requirements include operating system maintenance, disk backups, server monitoring, and configuration maintenance for the Windows NT Server and Novell IntraNetware operating and user environments.

In particular, the Decennial Directorate is responsible for monitoring servers to detect hardware, operating system, and network error conditions and for providing sufficient administrative coverage to ensure adequate response to hardware, network, and security problems. Decennial systems management staff provides the ability to recover everything from the operating system to the file system to the SuperCROSS databases and source files from backup media. Data Products Production subsystems are housed in the secure DADS terminal room in compliance with U.S. Census Bureau ADP/Title 13 security requirements.

Figure 4, on the following page, depicts how the Data Products Production subsystem supports IT.

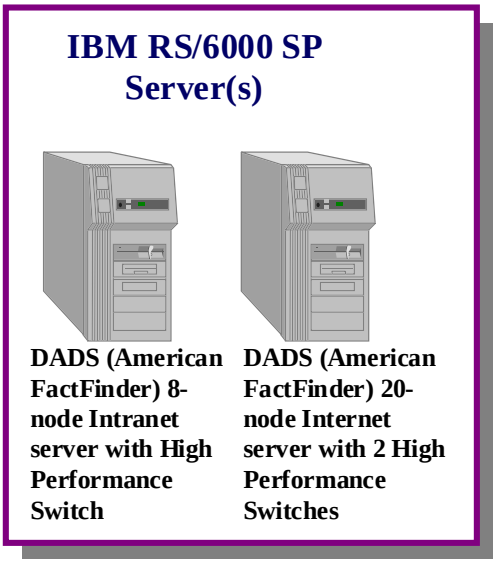

Figure 5: American FactFinder Server Configuration

The American FactFinder component of DADS is engineered for maximum availability and high uptime by the design implementation of failover capabilities. As a result, there are very few single points of failure. Certain components are judged to be so reliable (or not needed for normal operation) as to not need a backup. As an example, the SP switches do not have redundant backups. Possible downtime has been considered in the Reliability Model.

Disk capacity is configured such that every disk is connected to two nodes, and all data is mirrored; no single disk- or node-failure can make information inaccessible. This arrangement is depicted in Figure 6 below. Disks are also remotely accessible from other nodes, with very little latency. This process, in effect, creates one large and reliable shared disk.

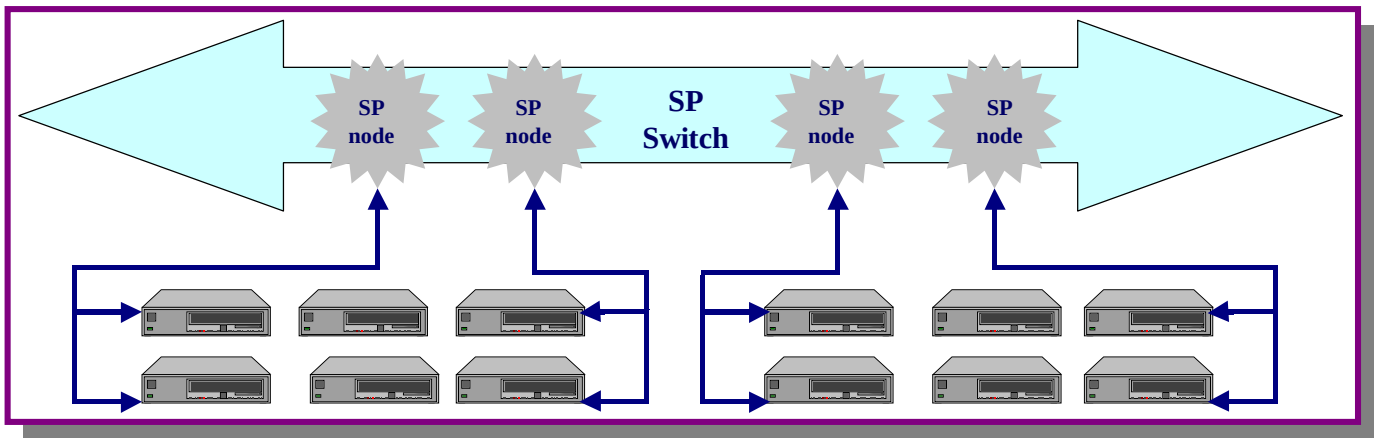

Figure 6: American FactFinder Reliability

American FactFinder (AFF) Major Software Components	
Software	**Description**
	Oracle Application Server allows application development in several different languages. The running applications execute in an OAS cartridge environment. OAS schedules inbound web requests to available cartridges depending on request type and load balance. Within the cartridge, application software generates HTML output (using HTML libraries provided by OAS), which are then routed back through the web server to the requesting browser. Inside the cartridge, application code has access to Oracle databases, the OAS environment, and HTML generation capability.
Oracle Parallel Database	The U.S. Census Bureau selected Oracle's database software for DADS as the new standard for relational databases because it consistently performs well, runs on many platforms, and has leading-edge functionality. Oracle's version titled, "Oracle 8 Parallel Server (OPS)" is optimized for execution across multiple nodes on machines like the IBM RS/6000 SP. Based on our analysis, we expect the number of database queries to be substantial. We selected OPS for this reason and the fact that it provides better throughput in our hardware environment despite its requirement for more administrative care in setup and tuning. Multiple nodes can participate as part of a large "data warehouse," each contributing to overall processing capability, and each node able to support queries. Because of the RS/6000 SP's low-latency virtual disk mechanism, queries executed on any node can access database tables from any other node at very little degradation in performance. This arrangement gives the database administrators greater latitude in laying out tables.
JDBC	AFF communicates with databases via the Java standard JDBC, which is supported in Java's JDK. JDBC specifies standard ways for communicating with databases that implement the SQL standard. Any database that has a JDBC driver can be connected into AFF.
Web Browsers	Web Browsers display pages of information that are received from the server, and perform limited program execution. HTML (version 3.2 or later) is the current standard for information formatting. Since users are responsible for selecting, installing, and configuring their web browsers, DADS deliberately avoided using Java applet execution in the browser for DADS, except for optional functionality, due to concerns that some users could not run Java applets. To achieve the graphical look and feel desired, some custom browser programming in JavaScript was required.
HTML, URL, HTTP	Communication between the client and the server is done strictly with web protocols: HTTP network traffic, carrying URLs from the client and HTML (version 3.2) from the server. This protocol is a widely accepted worldwide standard and is typically passed through firewalls. DADS uses this API for communicating between the internal and external servers.
Custom Java Code	Java is the standard language for DADS application development. DADS has two environments for which Java code is written: the RS/6000 SP server (inside OAS Java Cartridges) and in the browser (in optional Java applets). DADS will use JDK 1.1 despite limited browser support due to better stability, performance, and User Interface.
Custom JavaScript Code	DADS maintains session state information in browser cookies. Because cookies only store string values and are limited in number, managing cookies is difficult and has required substantial JavaScript code. It is our intention to eliminate the JavaScript-based cookie manipulation code when a decision is reached on which browsers to support.
SQL	ANSI SQL-92 is the standard for databases which are JDBC compliant.
XML	XML, the Extended Markup Language, is a derivative of SGML (Standard Generalized Markup Language), and is a successor to HTML. Where HTML describes content-free layout, SGML describes layout-free content. XML is rapidly gaining popularity as a data exchange format. DADS uses XML 1.0 as the base for the XAP (XML Application Project) File Format, which is designed to be a project specification file for the GIS Data Server/IMS products.
CORBA	Industry standard for interconnection between object application environments; it establishes a way to send messages between objects on different systems, and conventions for locating objects. It also provides a standard collection of services available to all object environments on the network. Although AFF is not making direct use of CORBA at present, the Oracle Application Server (OAS) is built to CORBA standards (for communication between cartridges). There is planning in place to use CORBA-connected clients as an alternative to HTML-based browsers. In using Java-enabled clients talking to AFF via CORBA, we can deliver a higher-quality user interface, and off-load processing from our server.

American FactFinder New Requirements	
Requirement	**Description**
SuperCross Integration	**AFF will be able to respond more rapidly, and at higher volume, by making use of SuperCross's sophisticated query capabilities. This would reduce or eliminate the requirement to produce and store pre-generated tables, significantly streamlining system resource usage and enabling AFF to accommodate more different types of data and data products.**
Integrated Information System Initiatives	**The IIS is focusing on long-term solutions to projected U.S. Census Bureau business needs, many of these solutions involve DADS. Early development creates a framework to support longer-range IIS initiatives, which will make it less expensive in the outyears to develop additional capabilities.**
Standards Compliance	**It was originally anticipated that compliance requirements for the Americans with Disabilities Act would not become an issue until FY00 or beyond. However, several initiatives have been started on other U.S. Census Bureau programs, and it is possible that DADS will be included. Compliance will be complex, in particular because many of the interface screens and user responses will need to be completely redesigned to accommodate special needs. An early start to address these considerations will greatly expand the potential user community, and create a positive atmosphere among our customers.**
Developing DADS Requirements	**In order to focus on DPP subsystem development in FY98/99, further DADS requirements analysis was postponed until FY00. These analyses must be completed as early as possible so that design/development work on DADS2000 can commence.**

2.1.2 American FactFinder Progress Against Planned Milestones

Most of the milestones in last year's Operational IT Plan were accomplished on schedule as presented. The single exception was the public release of the Internet version of the American FactFinder, originally scheduled for January 4, 1999 but released on March 15, 1999. The delay was a result of a number of issues (see the table on the following page) but these have been overcome and the schedule re-established. The internal and external American FactFinder subsystems have been conditionally accepted with active Defect Correction Plans.

American FactFinder Milestones, FY 00					
Description	Estimated		Actual		Progress to Date
	Start Date	Finish Date	Start Date	Finish Date	
Y2K Compliance Testing	01/99	10/99			In progress.
Y2K Compliance Certification	10/99	10/99			
Requirements Gathering	12/98	12/99			In progress.
Y2K Full Regression Testing for Verification	11/99	12/99			
Requirements Analysis, Planning and Documentation	01/99	01/00			In progress.
Security Plan Review and Revision	02/00	03/00			
Design Processes	06/99	04/00			In progress.
Post Release Development and Enhancement	01/99	07/00			In progress.
Production Operation	01/99	09/00			In progress.
Integration Testing	07/00	09/00			

American FactFinder Milestones, FY 01					
Description	Estimated		Actual		Progress to Date
	Start Date	Finish Date	Start Date	Finish Date	
Training	09/00	10/00			
Acceptance Testing	09/00	10/00			
Deployment for Census 2000	10/00	11/00			
Security Plan Review and Revision	02/01	03/01			
Production Operation	10/99	09/01			
Production	12/00	09/01			
Post Production enhancement	12/00	09/01			
AFF System Enhancement/ Requirements Gathering, Review and Analysis	12/01	09/01			

American FactFinder Milestones, FY 02					
Description	Estimated		Actual		Progress to Date
	Start Date	Finish Date	Start Date	Finish Date	
Security Plan 3-Year Re-Write	02/02	03/02			
Security Re-Certification and Re-Accreditation (3-year)	06/02	06/02			
AFF System Enhancement/ Requirements Gathering, Review and Analysis	10/01	09/02			
Post Production Enhancement	10/01	09/02			
Production Operation	10/00	09/02			

2.1.4 American FactFinder Risks

The DADS Program has identified a series of strategic risks that overlap the two major subsystems and therefore will be presented in a consolidated manner; we will identify any segment that applies to a specific subsystem.

One risk is that DADS might not meet the needs of its user community due to limited empirical data on which to base planning estimates. The focus of DADS' current design is based on a performance model with little firm empirical data as well as from input from internal U.S. Census Bureau representatives serving as proxies for external users and organizations. DADS' current design capacity is for a maximum of 1,400 concurrent users on both the internal and external systems. Current analysis projects a potential for 2,000 internal and 4 million external system hits monthly. If this happens, the current American FactFinder subsystem design would be overwhelmed.

The Data Products Production subsystem's innovative implementation of highly sophisticated data product and tabulation tools has the potential to encourage other U.S. Census Bureau organizations to explore its use for production of their data products. However, since current subsystem requirements are static in nature and focused on a finite set of tabular products, the current design is not comprehensive enough to allow expansion for new product areas. The current architecture concept will not be able to accommodate a wider variety of U.S. Census Bureau data and data products without expansion to provide new product areas.

Our risk mitigation strategies include the following:

- **pursuing avenues of funding in advance of anticipated need;**
- **targeting specific functional areas of the American FactFinder for performance enhancements;**
- **developing a system limitation mechanism to control the number of concurrent users allowed access;**
- **designing/redesigning pricing methodologies to minimize use of resource-intensive functionality;**
- **developing and implementing a Communications and Deployment Plan to educate potential American FactFinder clients as to the latest developments in Release and Content Schedules;**
- **developing and distributing written User Guides defining functionality and content to clients when subystems are deployed;**
- **proactively analyzing future requirements and ensuring that those requirements previously collected but not implemented are placed on the table for inclusion;**
- **following a design process that ensures that the current and future American FactFinder architecture is (and remains) open and compatible with OSI concepts; and**
- **developing strong working relationships between the American FactFinder staff and other U.S. Census Bureau planning groups and operational staffs.**

Another risk is that DADS might not meet its established deadlines because supplying organizations send data files late or send inaccurate data files. DADS' utility is directly tied to the availability of data and data products that are collected from diverse and disparate U.S. Census Bureau sources and are subject to internal agendas and organizational complexities. If the supplying organizations fail to deliver, or fail to deliver on time, the necessary data files or products, this will lead to a serious loss of credibility for DADS and the U.S. Census Bureau. It should be noted that the release schedule of

have inherent risks and promulgate a degree of serious concern.

Our risk mitigation strategies include the following:

- **working with appropriate U.S. Census Bureau organizations to develop and emply a rigorous set of edits and programmed rules (confidentiality filters) that will ensure that no disclosure of Title 13 data can occur;**
- **identifying and becoming intimately familiar with all required government standards;**
- **implementing a rigorous discovery and testing process to identify any security weaknesses;**
- **attaining proper security accreditation and certification through established U.S. Census Bureau security processes;**
- **implementing, at the earliest opportunity, the software interface between IBM AIX and Novell NDS;**
- **using the corporate Novell infrastructure to achieve independent and centralized control of access and utilization;**
- **employing IBM's corporate knowledge regarding web page security design and implementation; and**
- **conducting "ethical hacking" exercises to identify weak points in system security.**

Another risk is that new or redefined requirements might cause the scope of the contract or the baseline requirements to creep. With the significant number of "unknowns" inherent to developmental programs such as DADS, requirements are often poorly defined or misinterpreted due to a lack of understanding or poor communication and achieve clarity only after much investigation and discussion.

Additionally, the focus of system development is often subject to changes in organizational priorities, corporate politics, and resistance to change. Capabilities not envisioned at the outset become critical due to new guidance, newly perceived need, or the introduction of new technology. As the system becomes functional and the user community becomes aware of the system's utility, demand increases and the capacity/ capability to do more is required.

Our risk mitigation strategies include the following:

- **applying the DADS Change Control Process (already in place) to manage the introduction of baseline variances (i.e., new, deleted, or modified/clarified requirements, etc.);**
- **involving user groups and client organizations early in the process to define and clarify the requirements gathered. We will establish concise lines of communication and foster open discussion;**
- **proactively applying, during each iteration or release of DADS, the "lessons learned" previously; and**
- **ensuring that the contract vehicle is designed to best address the current and potential needs of the program. We will maintain adequate contract expertise to accomplish necessary modifications, negotiations, and maintenance of contract vehicles.**

The last risk is that DADS' service might fail due to "single points of failure." DADS is designed around two IBM RS/6000 SP computing platforms, one for each of the Internet and Intranet components. Any major failure that overwhelms the system's "failover" redundancy design would incapacitate the applicable component system and result in a loss of that specific Internet or Intranet capability. The current program paradigm does not take into consideration the concept of a contingency site or of a redundant, mirrored, or "hot" system that would replicate system capability.

2.2.1 Detailed Description of Data Products Production

The Data Products Production subsystem creates and delivers 1998 Dress Rehearsal and 2000 Decennial data products, including Public Law 94-171 (PL) listings and summary files, the Sample Summary File, and the Hundred Percent Summary File.

The DADS Data Products Production implementation will start with installing the latest version of Super-CROSS client and server software, configuring the operating environment to meet production requirements, and creating data preparation and loading scripts. The Super-CROSS tabulation products do not presently run on SP/AIX systems, but the development of a compatible version is in progress and will be delivered in the last quarter of FY 1999. In the meantime, DADS is developing the Data Products Production subsystem on a pair of Compaq NT servers and is planning to accomplish the initial processing of its data in this environment. When the SP/AIX version of SuperCross is delivered, we will move all development and production process to the RS/6000 SP (internal) system.

While the NT servers are not as scalable nor as fault-tolerant as the SP server, they meet our anticipated short-term needs. Super-CROSS tabulation makes extensive use of memory, and can handle datasets of such size as to be limited only by the amount of available memory. Thus any server hosting SuperCROSS software must be configured with a significant amount of memory.

The following table lists the Data Products Production subsystem's major hardware components.

Data Products Production Major Hardware Components

Quantity	Vendor/ Model	CPU	RAM	Storage	Components or Modules	Physical Location	Comments
2	Compaq MS NT-based	333 MHz	128 Mb	18 GB	File servers	HQ	100 MB/s NIC

Data Products Production New Initiatives	
Initiative	**Description**
CUF/CEF Access	**Selected U.S. Census Bureau internal organizations urgently require easy access to the census Unedited and Edited Files. The DPP subsystem, because of the use of SuperCross, would provide an ideal platform for that access.**
Data Verification	**Accuracy of the data portrayed in census data products must be unimpeachable. Without data verification capability, the U.S. Census Bureau's very small team of DPP operators will have to use labor-intensive off-line data verification techniques.**
Data Product Progress/Track-ing/Reporting	**Data products are extremely complex documents, and the turnover associated with document creation is great. In order to prevent inadvertent compromise of data, and to ensure the most current information is provided to the user community, it is essential that data products be accurately tracked.**
2000 Workloads	**Because of the time press to produce a system, DADS98 DPP subsystem development very specifically focused on accommodating Dress Rehearsal capacities. We anticipate that the significantly higher workloads and capacities required for the Decennial will tax the DPP subsystem to its limits.**
Integrated Information System Initiative	**The IIS is focusing on long-term solutions to projected U.S. Census Bureau business needs, many of these solutions involve DADS. Early development creates a framework to support longer-range IIS initiatives, which will make it less expensive in the outyears to develop additional capabilities.**

2.2.2 Data Products Production Progress Against Planned Milestones

All of the milestones submitted in last year's Operational IT Plan were accomplished on schedule as presented. The Data Products Production subsystem has been conditionally accepted with an active Defect Correction Plan in place. We expect formal acceptance to take place by the end of April 1999.

Data Products Production Milestones, FY 98					
Description	**Estimated**		**Actual**		**Progress to Date**
	Start Date	**Finish Date**	**Start Date**	**Finish Date**	
No milestones to report					

Data Products Production Milestones, FY 02					
Description	Estimated		Actual		Progress to Date
	Start Date	Finish Date	Start Date	Finish Date	
Security Plan Review and Revision	02/02	03/02			
Security Re-Certification and Re-Accreditation (3-year)	06/02	06/02			
DPP System Enhancement/ Requirements Gathering, Review and Analysis	10/01	09/02			
Post Production Enhancement	10/01	09/02			
Production Operation	10/01	09/02			

Data Products Production Milestones, FY 03					
Description	Estimated		Actual		Progress to Date
	Start Date	Finish Date	Start Date	Finish Date	
Security Plan Review and Revision	02/03	03/03			
Production Operation	10/02	09/03			
DPP System Enhancement/ Requirements Gathering, Review and Analysis	10/02	09/03			
Post Production Enhancement	10/02	09/03			

2.2.3 Data Products Production Performance Measures

Data Products Production Performance Measures			
Performance Goals	Performance Measures	Target Performance	Current Performance
Availability of the Data Products Production subsystem to act as a tool in support of production and dissemination requirements	% of goals using DPP products	100%	100%
	% of performance error rate	100%	100%
	% user friendliness and product quality	100%	100%
	% of system availability	98%	98%
	% of competence after training	98%	98%
Data Products Production sub-system capable of producing and disseminating acceptable data products on time and in the quantities required	% of goals using DPP products	100%	100%
	% of performance error rate	100%	100%
	% user friendliness and product quality	100%	100%
	% of system availability	98%	98%
Data Products Production will serve a larger customer base with greater speed, accuracy and more tailored customer service	% of goals using DPP products	100%	100%
	% of performance error rate	100%	100%
	% of system availability	98%	98%
Data Products Production sub-system performance	% of planned capacity	100%	100%
	% of planned throughput	100%	100%
	% of planned response times	100%	100%

Data Access and Dissemination Systems (DADS) Infrastructure Milestones, FY 99					
Description	Estimated		Actual		Progress to Date
	Start Date	Finish Date	Start Date	Finish Date	
Technology Refreshment	10/98	09/99	10/98		In progress.

Data Access and Dissemination Systems (DADS) Infrastructure Milestones, FY 00-03					
Description	Estimated		Actual		Progress to Date
	Start Date	Finish Date	Start Date	Finish Date	
Technology Refreshment	10/99	09/03			

3.3 DADS Infrastructure Performance Measures

Not applicable.

3.4 DADS Infrastructure Risks

Not applicable.

3.5 DADS Infrastructure References

Not applicable.